

**SYSTEM AND METHOD FOR CHARACTERIZATION  
OF THIN FILMS**

**Abstract of the Invention**

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Characterization of a sample, e.g., determination of a component's concentration in a thin film, may be attained by providing calibration information representative of surface spectrum measurements for a plurality of samples correlated with depth profile information for the plurality of samples. The plurality of samples are formed under a same set of process conditions. One or more surface spectrum measurements are provided for a sample to be characterized that also was formed under the same set of process conditions. At least one characteristic of the sample to be characterized (e.g., concentration of a component) is determined based on the one or more surface spectrum measurements for the sample to be characterized and the calibration information.

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